MEAN WELL LRS-350-24

MEAN WELL LRS-350-24 Power Supply User Manual

Model: LRS-350-24

1. Introduction

This manual provides essential information for the safe and efficient operation of the MEAN WELL LRS-350-24 Single Output Switchable Power Supply. Please read this manual thoroughly before installation and use.

Figure 1: MEAN WELL LRS-350-24 Power Supply. This image shows the enclosed power supply unit with its ventilation grille, terminal block, and model label.

2. Safety Information

- Ensure proper grounding to prevent electrical shock.
- Do not operate the unit in wet or damp conditions.
- Verify input voltage selection switch (115VAC/230VAC) is set correctly before connecting to power. Incorrect setting can cause damage.
- Installation should be performed by qualified personnel.
- Do not open the power supply casing; there are no user-serviceable parts inside.
- Ensure adequate ventilation to prevent overheating.
- Disconnect power before performing any maintenance or wiring changes.

3. Product Overview

3.1 Features

- AC input range selectable by a switch.
- Withstands 300 VAC surge input for 5 seconds.
- No load power consumption below 0.75W.
- 1U low profile design.
- High operating temperature, up to 70°C.
- Protections: Short circuit, Overload, Over voltage, Over temperature.
- Built-in cooling fan with ON-OFF control.
- Compliance to UL 60950-1.
- Withstands 5G vibration test.
- High efficiency, long life, and high reliability.
- LED indicator for power on status.
- 100% full load burn-in test.
- 3-year warranty.

3.2 Applications

- Industrial automation machinery.
- Industrial control systems.
- Mechanical and electrical equipment.
- Electronic instruments, equipment, or apparatus.

MEAN WELL

350W Single Output Switching Power Supply

LRS-350 series

■ Features

- AC input range selectable by switch
- Withstand 300VAC surge input for 5 second
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Forced air cooling by built-in DC fan
- Built-in cooling Fan ON-OFF control
- 1U low profile
- Withstand 5G vibration test
- LED indicator for power on
- No load power consumption<0.75W
- 100% full load burn-in test
- High operating temperature up to 70℃
- Operating altitude up to 5000 meters (Note.8)
- High efficiency, long life and high reliability
- 3 years warranty

■ Applications

- Industrial automation machinery
- Industrial control system
- Mechanical and electrical equipment
- Electronic instruments, equipments or apparatus

■ Description

LRS-350 series is a 350W single-output enclosed type power supply with 30mm of low profile design. Adopting the input of 115VAC or 230VAC (select by switch), the entire series provides an output voltage line of 3.3V, 4.2V, 5V, 12V, 15V, 24V, 36V and 48V.

In addition to the high efficiency up to 89%, with the built-in long life fan LRS-350 can work under -25~+70℃ with full load. Delivering an extremely low no load power consumption (less than 0.75W), it allows the end system to easily meet the worldwide energy requirement. LRS-350 has the complete protection functions and 5G anti-vibration capability; it is complied with the international safety regulations such as UL60950-1. LRS-350 series serves as a high price-to-performance power supply solution for various industrial applications.

■ Model Encoding

LRS - 350 - 3.3

- 3.3 — Output voltage
- 350 — Output power
- LRS — Series name

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Figure 2: Overview of LRS-350 series features and typical applications. This image displays a summary of the power supply's capabilities and suitable uses.

4. Setup and Installation

4.1 Pre-Installation Check

Before installation, ensure the power supply is undamaged and that all necessary components are available. Verify the input voltage requirement of your application matches the power supply's capabilities.

4.2 AC Input Voltage Selection

The LRS-350-24 features an AC input range selectable by a switch. Locate the switch on the side of the unit. Set it to either **115VAC** (for 90-132VAC input) or **230VAC** (for 180-264VAC input) according to your local mains voltage. **Failure to set this correctly can result in damage to the unit.**

4.3 Wiring Connections

Connect the power supply using the screw terminal block. Refer to the mechanical specification diagram for terminal assignments.

- **AC Input:** Connect Live (L), Neutral (N), and Ground (FG) to the corresponding input terminals.
- **DC Output:** Connect the positive (+) and negative (-) load wires to the DC OUTPUT terminals.

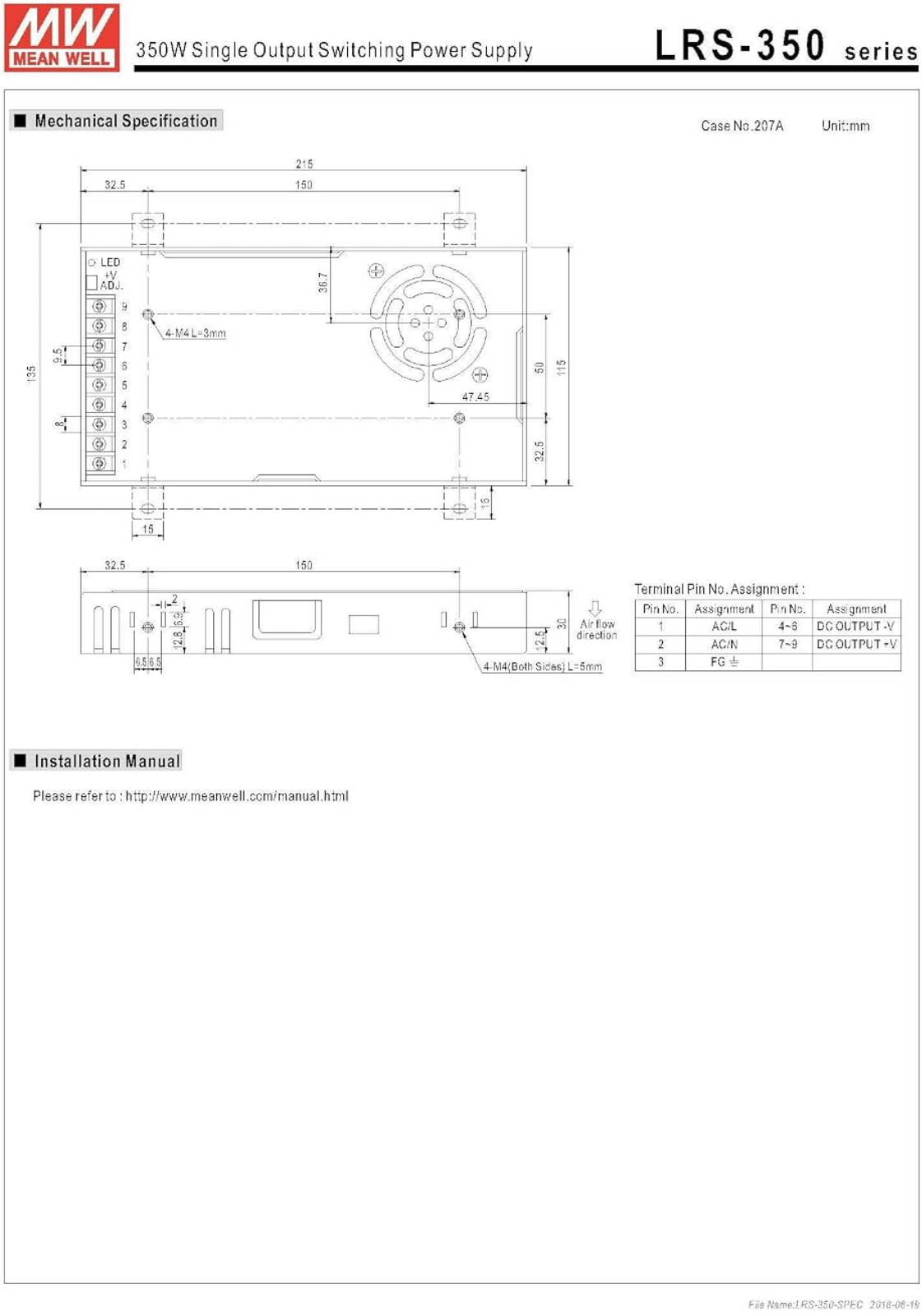


Figure 3: Mechanical dimensions and terminal block assignments for the LRS-350 series. This diagram provides physical measurements and pinout details for wiring.

4.4 Mounting

Mount the power supply in a location that allows for adequate airflow around the unit, especially near the cooling

fan. Use appropriate screws and mounting points as indicated in the mechanical specification diagram.

5. Operating Instructions

5.1 Power On

After ensuring all connections are secure and the AC input voltage switch is correctly set, apply AC power. The LED indicator on the unit will illuminate, indicating that the power supply is operational.

5.2 Output Voltage Adjustment

The output voltage can be finely adjusted using the potentiometer located near the output terminals. Use a small screwdriver to carefully turn the potentiometer to achieve the desired output voltage within the specified range (typically 21.6V to 28.8V for the 24V model).

5.3 Cooling Fan Operation

The built-in cooling fan operates with ON-OFF control, activating automatically when the internal temperature reaches a certain threshold to maintain optimal operating conditions. It will turn off when the temperature drops.

6. Maintenance

The LRS-350-24 power supply is designed for long-term reliability with minimal maintenance. However, periodic checks can help ensure optimal performance.

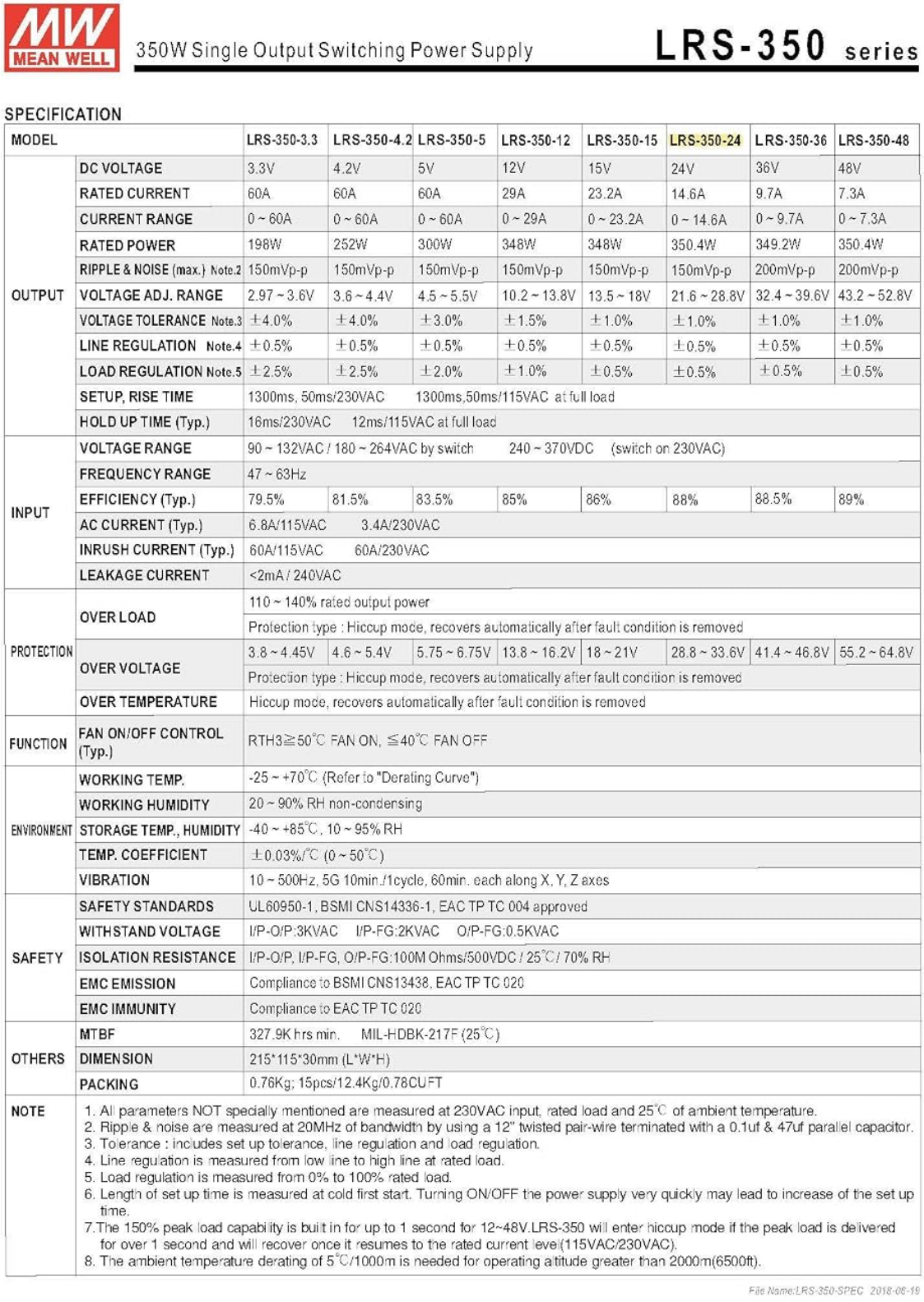
- **Cleaning:** Ensure ventilation openings are free from dust and debris. Use a soft, dry cloth or compressed air to clean the exterior. Do not use liquid cleaners.
- **Connections:** Periodically check all wiring connections to ensure they remain tight and secure.
- **Environment:** Maintain the operating environment within specified temperature and humidity ranges to prolong the unit's lifespan.

7. Troubleshooting

Problem	Possible Cause	Solution
No output voltage / LED off	• No AC input power. • Incorrect AC input voltage switch setting. • Short circuit or overload on output. • Internal fault.	• Check AC power source and connections. • Verify AC input switch (115VAC/230VAC) is correct. • Disconnect load and check for short circuits. • If problem persists, contact support.
Output voltage too low or unstable	• Overload condition. • Output voltage adjustment incorrect.	• Reduce load or use a higher-rated power supply. • Adjust output voltage potentiometer.
Fan is loud or constantly running	• High ambient temperature. • Heavy load causing internal heat. • Dust accumulation in fan.	• Ensure adequate ventilation. • Verify load is within specifications. • Clean fan and vents.

8. Specifications

Detailed electrical and mechanical specifications for the MEAN WELL LRS-350-24 power supply.



MEAN WELL

350W Single Output Switching Power Supply **LRS-350 series**

SPECIFICATION

MODEL		LRS-350-3.3	LRS-350-4.2	LRS-350-5	LRS-350-12	LRS-350-15	LRS-350-24	LRS-350-36	LRS-350-48
OUTPUT	DC VOLTAGE	3.3V	4.2V	5V	12V	15V	24V	36V	48V
	RATED CURRENT	60A	60A	60A	29A	23.2A	14.6A	9.7A	7.3A
	CURRENT RANGE	0 ~ 60A	0 ~ 60A	0 ~ 60A	0 ~ 29A	0 ~ 23.2A	0 ~ 14.6A	0 ~ 9.7A	0 ~ 7.3A
	RATED POWER	198W	252W	300W	348W	348W	350.4W	349.2W	350.4W
	RIPPLE & NOISE (max.) Note.2	150mVp-p	150mVp-p	150mVp-p	150mVp-p	150mVp-p	150mVp-p	200mVp-p	200mVp-p
	VOLTAGE ADJ. RANGE	2.97 ~ 3.6V	3.6 ~ 4.4V	4.5 ~ 5.5V	10.2 ~ 13.8V	13.5 ~ 18V	21.6 ~ 28.8V	32.4 ~ 39.6V	43.2 ~ 52.8V
	VOLTAGE TOLERANCE Note.3	±4.0%	±4.0%	±3.0%	±1.5%	±1.0%	±1.0%	±1.0%	±1.0%
	LINE REGULATION Note.4	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	LOAD REGULATION Note.5	±2.5%	±2.5%	±2.0%	±1.0%	±0.5%	±0.5%	±0.5%	±0.5%
	SETUP, RISE TIME	1300ms, 50ms/230VAC 1300ms,50ms/115VAC at full load							
	HOLD UP TIME (Typ.)	16ms/230VAC 12ms/115VAC at full load							
INPUT	VOLTAGE RANGE	90 ~ 132VAC / 180 ~ 264VAC by switch 240 ~ 370VDC (switch on 230VAC)							
	FREQUENCY RANGE	47 ~ 63Hz							
	EFFICIENCY (Typ.)	79.5%	81.5%	83.5%	85%	86%	88%	88.5%	89%
	AC CURRENT (Typ.)	6.8A/115VAC 3.4A/230VAC							
	INRUSH CURRENT (Typ.)	60A/115VAC 60A/230VAC							
	LEAKAGE CURRENT	<2mA / 240VAC							
PROTECTION	OVER LOAD	110 ~ 140% rated output power							
		Protection type : Hiccup mode, recovers automatically after fault condition is removed							
	OVER VOLTAGE	3.8 ~ 4.45V	4.6 ~ 5.4V	5.75 ~ 6.75V	13.8 ~ 16.2V	18 ~ 21V	28.8 ~ 33.6V	41.4 ~ 46.8V	55.2 ~ 64.8V
		Protection type : Hiccup mode, recovers automatically after fault condition is removed							
	OVER TEMPERATURE	Hiccup mode, recovers automatically after fault condition is removed							
FUNCTION	FAN ON/OFF CONTROL (Typ.)	RTH3≧50℃ FAN ON, ≦40℃ FAN OFF							
ENVIRONMENT	WORKING TEMP.	-25 ~ +70℃ (Refer to "Derating Curve")							
	WORKING HUMIDITY	20 ~ 90% RH non-condensing							
	STORAGE TEMP., HUMIDITY	-40 ~ +85℃, 10 ~ 95% RH							
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 50℃)							
	VIBRATION	10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes							
SAFETY	SAFETY STANDARDS	UL60950-1, BSMI CNS14336-1, EAC TP TC 004 approved							
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC							
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC / 25℃/ 70% RH							
	EMC EMISSION	Compliance to BSMI CNS13438, EAC TP TC 020							
	EMC IMMUNITY	Compliance to EAC TP TC 020							
OTHERS	MTBF	327.9K hrs min. MIL-HDBK-217F (25℃)							
	DIMENSION	215*115*30mm (L*W*H)							
	PACKING	0.76Kg; 15pcs/12.4Kg/0.78CUFT							
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. Line regulation is measured from low line to high line at rated load. 5. Load regulation is measured from 0% to 100% rated load. 6. Length of set up time is measured at cold first start. Turning ON/OFF the power supply very quickly may lead to increase of the set up time. 7.The 150% peak load capability is built in for up to 1 second for 12~48V.LRS-350 will enter hiccup mode if the peak load is delivered for over 1 second and will recover once it resumes to the rated current level(115VAC/230VAC). 8. The ambient temperature derating of 5℃/1000m is needed for operating altitude greater than 2000m(6500ft).								

File Name:LRS-350-SPEC 2018-06-19

Figure 4: Comprehensive specification table for the LRS-350 series, including input, output, protection, and environmental data.

Parameter	Value
Model	LRS-350-24

Parameter	Value
Primary Output Voltage (VDC)	24
Output Current (A)	14.6
Maximum Output Power (W)	350.4
Input Voltage (VAC)	90 to 132 / 180 to 264 (selectable)
Input Frequency (Hz)	47 to 63
Maximum Input Current (A)	6.8
Output Connector Type	Screw Terminal Block
Number of Outputs	1
Form Factor	Enclosed
Product Dimensions (L x W x H)	8.46 x 1.18 x 4.53 inches
Item Weight	1.64 pounds
Cooling Method	Air (Built-in fan)
Operating Temperature	Up to 70°C
Protections	Short circuit, Overload, Over voltage, Over temperature
Compliance	UL 60950-1
Warranty	3 years

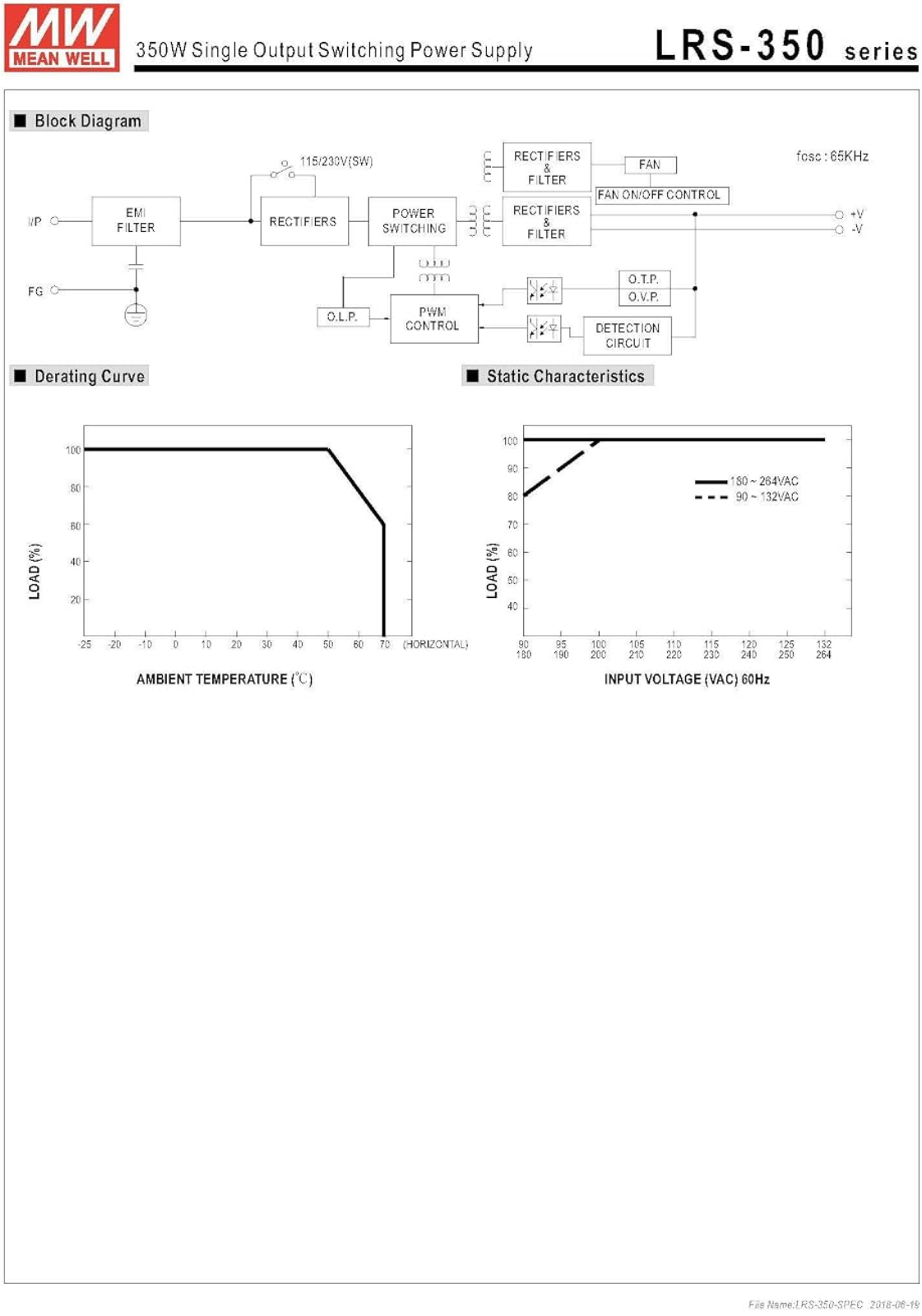


Figure 5: Block diagram illustrating the internal structure and performance curves (derating, static characteristics) of the LRS-350 series.

9. Warranty and Support

The MEAN WELL LRS-350-24 power supply comes with a**3-year warranty** from the date of purchase. This warranty covers defects in materials and workmanship under normal use.
For technical support, warranty claims, or service inquiries, please contact your authorized MEAN WELL distributor or reseller. Do not attempt to repair the unit yourself, as this will void the warranty and may pose safety risks.